STATION 08 Goddard Initiatives

Extremophiles: Some Like it COLD

Scientists of the Goddard Center for Astrobiology study life found in extreme environments on Earth such as glacier ices, hydrothermal vents and alkaline lakes. For one research project, NASA scientists traveled to Svalbard, Norway, to study life that survives in very cold temperatures and in glacier ices. But you don't always have to be a world traveler to study life under extreme conditions. Scientists can simulate some of these extreme conditions in the laboratory.

AMASE/Kjell Ove Storvik

THE COOLEST LIFE: Goddard scientists study the red and blue algae that live in glacier ice. The photo above shows samples being collected from Friedrichbreen glacier in Svalbard, Norway.

Some Like it HOT

Jim Peaco/National Park Service

HEAT-RESISTANT BACTERIA: The vivid colors around the Grand Prismatic Spring in Yellowstone National Park result from microbial mats that grow around the edges of the water. Life can survive even at the hot temperature of 160 °F (71 °C). The boardwalk path on the lower right side indicates the size of this thermal vent.

Understanding how life survives in extreme environments informs and guides the search for life beyond Earth. The extreme environments on Earth may be analogous to those on different planets and moons. Thus, extraterrestrial life may exist even on a hot or cold planet.

DID YOU KNOW?

The rise in oxygen was not entirely beneficial for life. It actually led to the near-extinction of oxygen-intolerant organisms.